

Revision of the Types of the *Psammodius* Fallén Species Described by Petrovitz and Kept in the Museum of Natural History in Genève (Coleoptera, Aphodiidae)

by

Miloslav RAKOVIČ

ABSTRACT

The Petrovitz' types of the *Psammodius* Fallén species from the Museum of Natural History in Genève were revised. *Psammodius pelluscens* (Petrovitz), which was formerly incorrectly synonymized with the *P. gestroi* (Clouët), was found to be a good species. A *nomen novum* — *Psammodius petrovitzi* was proposed for *P. somalicus* (Petrovitz, 1971) (not 1961). Additional notes concerning the descriptions and differentiation of individual species and new illustrations are presented.

Let me present results of examining those types of the *Psammodius* Fallén species described by Petrovitz which are kept in the Museum of Natural History in Genève. I definitely prefer to use the name *Psammodius* Fallén, in accordance with American authors, and LANDIN (1957) who presented an excellent discussion of the generic name, since the name *Psammobius* Heer is a synonym. The reasons for this are also mentioned in my recent work — RAKOVIČ (1977).

I am greatly indebted to Dr. Cl. Besuchet from the Museum of Natural History in Genève, who enabled me to study the specimens discussed below, which helped me not only in performing this work but also in studying the whole genus *Psammodius* Fallén.

DISCUSSION OF INDIVIDUAL SPECIES

Psammodius pelluscens (Petrovitz), a good sp., not syn. of *P. gestroi* (Clouët).

The material examined — *P. pelluscens*, holotype (Eastindia, Scinde, Umarkot, Stevens leg.), and one specimen (Baloutchestan, Tchachbehari/Tisa, Apr 6 to 8, 1973), both in coll. Petrovitz, Museum of Natural History, Genève; *P. gestroi* (Clouët), Bal-

thasar det., (Rawalpindi, Jhelum, Pakistan, Aug 25, 1967), in coll. Dr. Tesař, Opava, Czechoslovakia.

The *P. pelluscens* (Petrovitz) was described by PETROVITZ in 1961 and synonymized with the *P. gestroi* (Clouët) by BALTHASAR in 1964. Even according to the Balthasar's key

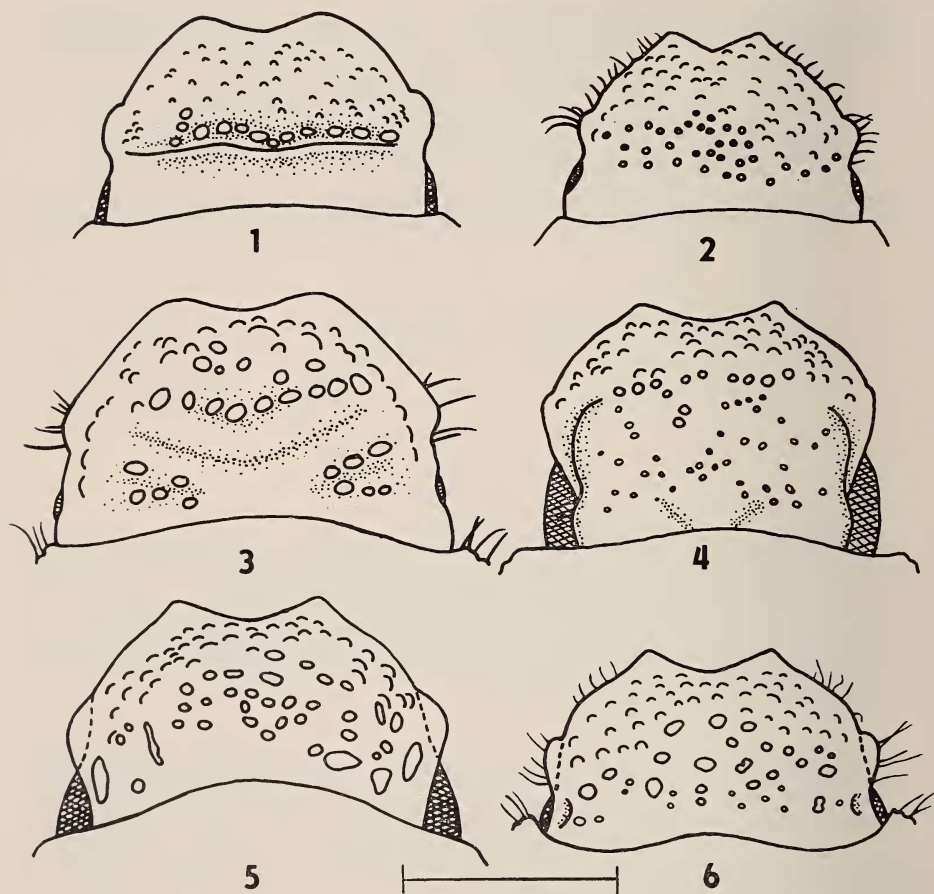


FIG. 1.

Heads of different *Psammmodius* species.

1. *P. pelluscens* (Petrovitz); 2. *P. gestroi* (Clouët); 3. *P. sefrensis* (Petrovitz); 4. *Psammmodius mesopotamicus* (Petrovitz); 5. *P. petrovitzi* n.n.; 6. *P. transcaspicus* (Petrovitz) (2.90 mm).
The line: 0.5 mm.

the *P. pelluscens* (Petrovitz) has to be classed into a quite different group of species for having a complete 10th elytral interval, whereas in the *P. gestroi* (Clouët) this interval achieves only about one half the elytra length. In addition to this, there are quite different shapes of the head in these two species (Figs. 1-1 and 1-2) and also some other characters as follows:

P. pelluscens (Petrovitz)

The head less narrowed anteriorly.
The clypeus emargination rounded.
The clypeus lateral margins convex, bare, smooth.
The pronotum only finely punctate.

The elytral intervals flat.

The frontal suture very well developed.

P. gestroi (Clouët)

The head more narrowed anteriorly.
The clypeus emargination angular.
The clypeus lateral margins straight, haired, crenulate.
The pronotum with fine punctures and sparsely distributed coarse pits.
The elytral intervals moderately, however, distinctly convex.
The frontal suture indistinct.

Photos of these two species, and drawings of the elytra shapes and tarsi are shown in Plate I-1, I-2, Figures 2-1, 2-2, and Figures 3-1, 3-2, respectively.

The original description of the *P. pelluscens* (Petrovitz) is unfortunately quite insufficient. As a matter of fact, only a similarity with the *P. desertorum* (Fairmaire) is mentioned and differences between these two species are discussed. Thus, let us present the following redescription.

Oval, broader behind, the length of 2.80 to 3.00 mm, the length-to-width ratio: 1: 0.485, shining, pale, yellowish brown, the frontal suture, anterior and posterior pronotum margins, spots (impressions) situated laterally (one on each side of the pronotum), scutellum, elytral suture and superficial punctures of the elytral striae darkened (Plate I-1).

The head chagrined, anteriorly densely covered by tubercles, with a chagrined swelling behind the frontal suture. The clypeus roundly emarginate, rounded each side of the emargination. The clypeus lateral margins convex, bare. The genae prominent, essentially semicircular (Fig. 2-1), sparsely and finely haired.

The pronotum with a complete basal margin line. The widest near its half, the length-to-width ratio 1:1.950. Lateral sides not crenulate anteriorly, sparsely haired, the hairs fine, not clavate. Only very indistinct (if any) trace of the longitudinal furrow. A shallow, rather wide transversal furrow behind the anterior margin and a very shallow lateral impression located each side of the pronotum laterally, at about one half the pronotum length.

The scutellum small, triangular, situated somewhat below the elytra level, with a fine microscopical, sculpture, however, yet bright, with somewhat darkened zones along its lateral margins.

The elytra widest behind their half, the length-to-width ratio 1: 0.750 with a finely margined, haired basis, without humeral teeth (Fig. 2-1). With 10 striae and 10 intervals. The striae very indistinct, with large, quite superficial punctures, disturbing remarkably the intervals — achieving about one third to one half the intervals width. The intervals flat, the 10th interval complete, non-shortened.

The posterior tibiae remarkably broadened apically, with strong, apically rounded apical spurs. The upper spur somewhat longer than the first two tarsal segments combined. The posterior tarsi remarkably shortened, with the first to fourth segments remarkably triangularly broadened (Fig. 3-1).

The ventral surface also pale, yellowish brown, the coxae, trochanters and apical ends of the femurs and tibiae darkened. The abdominal sternites bright, with sparsely distributed medium-sized punctures, the metasternum and prosternum remarkably chagrined, quite matte, with pale, fine hairs, the mesosternum chagrined and granulate; the metasternal plate with a narrow, darkened, essentially non-impressed longitudinal line along its whole length. The femurs less chagrined than the abdominal sternites.

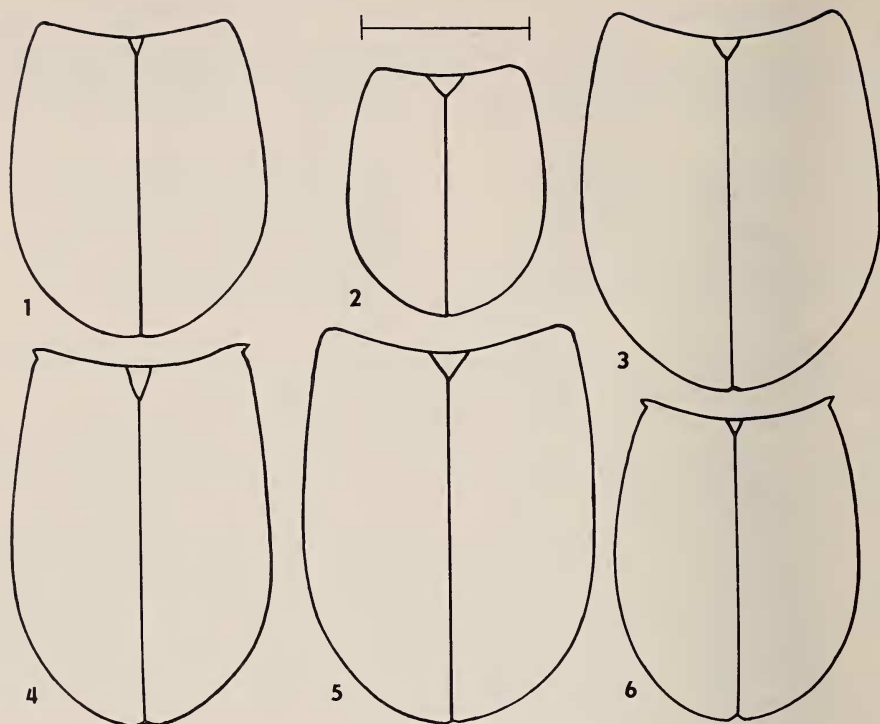


FIG. 2.

Shape of elytra of different *Psammmodius* species.

1. *P. pelluscens* (Petrovitz); 2. *P. gestroi* (Clouët); 3. *P. sefrensis* (Petrovitz); 4. *Psammmodius mesopotamicus* (Petrovitz); 5. *P. petrovitzi* n.n.; 6. *P. transcaspicus* (Petrovitz) (2.90 mm).
The line: 1.0 mm.

each with two rows of long, fine, pale hairs, parallel with anterior and posterior margins (the posterior row more separated from the margin than the anterior one). The ratio of the intermediate femurs width to the posterior femurs width 1: 1.71. The ratio of the length of the posterior tarsi to that of the posterior tibiae 1: 1.60.

The *P. pelluscens* (Petrovitz) is very similar to the following four Old World species, which are all characterized by pronotum without ridges, non-shortened 10th elytral interval, prominent genae and indistinct elytral striae with large, superficial punctures: *P. jelineki* Rakovič, *P. substriatus* (Balthasar), *P. evanidus* (Péringuey), and *P. laevis* (Paulian). They can be separated from each other by making the use of the following key.

- 1 (8) The head posteriorly (behind the frontal suture) with many tubercles, tuberculate swellings, or granulate swellings; the pronotum basal margin line well developed along the whole pronotum basis.
- 2 (5) The head posteriorly (behind the frontal suture) with a transversal, tuberculate swelling or with discrete tubercles.

- 3 (4) The superficial punctures of the elytra very large, the area of the intervals occupied by them wider than the remaining area; the elytral intervals not chagrined. Reddish brown. 2.5. to 3 mm. Southwest Africa . *substriatus* (Balthasar)
- 4 (3) The superficial punctures of the elytra somewhat smaller, the area of intervals occupied by them narrower than the remaining area; the elytral intervals chagrined. Reddish brown. 3 to 3.2 mm. Tanganyika Terr., Mosambique, Natal *evanidus* (Péringuey)
- 5 (2) The head posteriorly (behind the frontal suture) with a chagrined swelling.
- 6 (7) A darker species. The elytral intervals somewhat convex, finely chagrined, matte. The elytra basis not margined, bare. Reddish brown. 3 mm. Tchad, Tombouctou, Dahomey, Congo. *laevis* (Paulian)
- 7 (6) A paler species. The elytral intervals essentially flat, bright, not chagrined, finely, microscopically punctate. The elytra basis finely margined, haired. Pale, yellowish brown. 2.9 to 3.1 mm. East India, West Pakistan *pelluscens* (Petrovitz)
- 8 (1) The head posteriorly (behind the frontal suture) transparent, glassy, essentially smooth, only with unique, small grains; the pronotum basal margin line interrupted at the middle. Reddish brown, 3.4 mm. Iran *jelineki* Rakovič

Psammodius sefrensis (Petrovitz)

The material examined — 4 paratypes (Ain Sefra, Algeria, Mai 1896, Dr. Chobaut lgt.), in coll. Petrovitz, Museum of Natural History, Genève.

This species was described by PETROVITZ in 1961. The original description is sufficient. Here, I would like to mention the variability in the head shape and sculpture, to discuss the separation from the other species, and to present relevant illustrations (Plate I-3, Figs. 1-3, 2-3, and 3-3).

This species is characterized by its clypeus lateral margins which are directly changed into the genae (Fig. 1-3); among the 4 paratypes, there was one specimen with very moderately, however, yet distinctly expressed anterior margin of the genae. In some species oblique ridges of the first pair (on the head) tend to be fused (Fig. 1-3) whereas in other species, the first pair consists of two discrete ridges.

PETROVITZ (1961) compared the species with those having the complete 10th interval of the elytra. As a matter of fact, the 10th elytra interval is fused with the 9th one before $\frac{3}{4}$ elytra length. There is only one further species with pronotum transversal ridges, non-tuberculate elytral intervals, non-clavate setae of the pronotum margins and incomplete 10th interval — *P. generosus* Reitter. The *P. generosus* Reitter is paler its 10th elytral interval achieves only $\frac{1}{2}$ the elytra length, elytral intervals are more flat and pronotum ridges are higher.

Psammodius mesopotamicus (Petrovitz)

The material examined — holotype (Kirkuk, Irak, Dr. W. Schers lgt.), and one specimen (Bandar-abase, Süd Iran), both in coll. Petrovitz, Museum of Natural History, Genève.

This species was described by PETROVITZ in 1971. No additional description is necessary, however, illustrations (Plate II-4, Figs. 1-4, 2-4, and 3-4), which are quite missing in the original work, are presented here.

Among the species with pronotum transversal ridges and granulate elytral intervals, the *P. mesopotamicus* (Petrovitz) is the only one species with slightly prominent anterior margins of the genae (Fig. 1-4). In the other species of this group the anterior margin of the genae is either remarkably prominent (see e.g. Figs. 1-5 and 1-6) or, on the other hand, represented by continuing lateral margin of the clypeus.

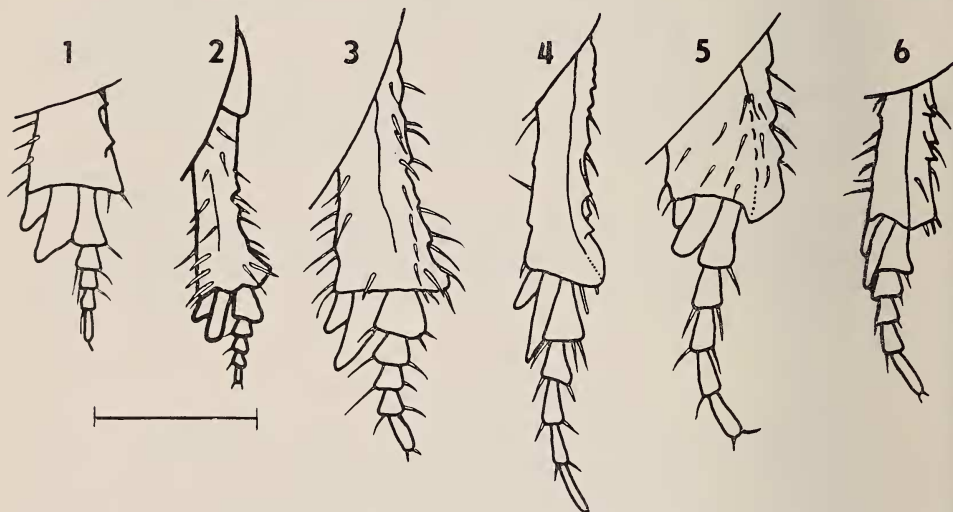


FIG. 3.

Tarsi of different *Psammodius* species.

1. *P. pelluscens* (Petrovitz); 2. *P. gestroi* (Clouët); 3. *P. sefrensis* (Petrovitz); 4. *Psammodius mesopotamicus* (Petrovitz); 5. *P. petrovitzi* n.n.; 6. *P. transcaspicus* (Petrovitz) (2.90 mm).
The line: 0.5 mm.

Psammodius petrovitzi n. n.

In 1961, PETROVITZ described *P. somalicus* from Somalia (the type of its species is possibly in the Frey Museum). In 1971 the same author used the same name for a quite different animal from Ethiopia (the type in the Museum of Natural History, Genève). Thus, the name *Psammodius somalicus* (Petrovitz, 1971), not 1961, should be eliminated as a homonym and replaced by the name *Psammodius petrovitzi* n. n. chosen in honour of this deceased specialist in the field of Scarabaeoidea who also brought a remarkable contribution to the knowledge of the genus *Psammodius*.

The material examined—holotype (Obok, Somalia Fr.), in coll. Petrovitz, Museum of Natural History, Genève.

Illustrations concerning this species are presented in Plate II-5 and Figures 1-5, 2-5, and 3-5.

There are three species with pronotum transversal ridges, granulate intervals and prominent anterior margins of the genae — *P. transcaspicus* (Petrovitz), *P. plicatulus* (Fairmaire) and *P. petrovitzi* n. n. The *P. transcaspicus* (Petrovitz) differs from the remaining two species by the genae which are strongly asymmetrical about their transversal axes (Fig. 3-6). The *P. plicatulus* (Fairmaire) can be separated on the basis of the pronotum sculpture. In the *P. plicatulus* (Fairmaire) all the pronotum ridges essentially consist of discrete tubercles, the fourth and fifth ridge are distinct only laterally, not visible from above. In the *P. petrovitzi* n. n. the third to fifth ridges are continuous, visible from above.

***Psammodius transcaspicus* (Petrovitz)**

The material examined—holotype (Transcaspia, Dortkuju, Apr 1900, coll. Hauser), in coll. Petrovitz, Museum of Natural History, Genève, and one specimen (desert Kizilkum near Bukhara, Uzbekistan, Apr 28 to 30, 1975, Olexa lgt.), in coll. A. Olexa, Prague.

The specimen collected by Mr. A. Olexa (Zoological Garden, Prague) is quite identical with the Petrovitz' holotype, except for a smaller size (2.9 mm).

For relevant illustrations see Plate II-6 and Figs. 1-6, 2-6, and 3-6.

The differentiation of this species from related species was already discussed with the *P. petrovitzi* n. n.

CONCLUSIONS

As to my knowledges, 36 *Psammodius* species from Europe, Asia and Africa were described until now. I had a possibility to study nearly all of them and to compare them with the Petrovitz' types from the Museum of Natural History with the result that all the five species discussed here are good species, including the *Psammodius pelluscens* (Petrovitz), formerly incorrectly synonymized with the *P. gestroi* (Clouët).

A new name (*Psammodius petrovitzi* n. n.) was established for the *P. somalicus* (Petrovitz, 1971), since the latter name was a homonym of the *P. somalicus* (Petrovitz, 1961).

New illustrations are presented since they are quite missing in the original descriptions and new differential diagnoses are discussed since about 13 new *Psammodius* species were described during the last two decades and thus, the original diagnoses became obsolete.

The finding of the *P. transcaspicus* (Petrovitz) by Mr. A. Olexa (at the roots of plants in the desert Kizilkum, near Bukhara, Uzbekistan) is very important, since this is an only one specimen of this species (except for the unique holotype) reported in the literature.

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Author's address :

Biophysical Institute, Charles University,
Salmovská 3, Prague 2
120 00, Czechoslovakia
